Effect of Vitamin B Complex and S-Factor on Acne Rosacea*

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The evaluation of methods of treatment in a condition as stubborn as acne rosacea is extremely difficult. This is illustrated by the great number of regimens and agents which have had their day in the treatment of the condition.

ACNE ROSACEA has been defined as an angioneurosis of the facial skin with seborrhea.[1] It is a chronic disorder of the "flush area" of the face characterized by congestion, seborrhea, telangiectasia and acneform lesions. It may vary from mild congestion to deep pustulation, terminating in fibrosis and rhinophyma.

Pathologically there is first mild congestion with infiltrates in the vicinity of sebaceous follicles; later there are demarcated nodular infiltrates about follicles, with leukocytes, a few epithelioid cells among lymphocytes, or tuberculoid cells. Later there is hypertrophy of connective tissue.[2-6] It is interesting that Laymon, and Miescher found this picture indistinguishable from Rosacea-like Tuberculid of Lewandowsky.

The causes of rosacea may be divided into four factors:

1. Lack of vitamins.[7] Riboflavin, especially in eye lesions,[8-10] niacin[11,12] and pyridoxine.[13,14]

2. Local infection, due to cocci,[15] and *Demodex folliculorum*.[16,17] Systemic infection localized to the sinuses, throat, female regenerative organs, and the gastrointestinal tract. Antibiotics are of help here.[18]

3. Gastrointestinal disturbances as the result of the overuse of caffeine, hot beverages, condiments, carbohydrates,[19] proteins, and alcohol. Proteins increase permeability of blood vessels, a fruit-vegetable diet decreases it.[20] A high carbohydrate intake is common in rosacea patients. Hydrochloric acid prevents pustulation by creating an acidophilic flora, and is necessary for digestive enzymes to act and for absorption of vitamins.[21-26] Chronic constipation leads to abnormal fermentation, aggravating the lesions.[27]

4. Neurogenic factors such as chronic worry, overwork, late hours, insomnia, introspective personality, marked repressions, excessive responsibilities, sudden shock, emotion, depressions which lead to gastric hypoacidity.[28]

An effective method of treatment should take account of these four factors. A review of the therapeutic approach by the use of vitamins offered little concrete or proven facts. Most investigators felt riboflavin was helpful for ocular lesions, and pyridoxine and the B-complex to be an aid for seborrhea. Articles appearing on liver extract in pustular and keloid acne suggested this potent source of B-complex might offer help for the pustular indurated type. Boiled and refined liver, so-called S-factor† (skin factor or Kutapressin) offered promise because of increased vasopressor influence on cutaneous capillaries.[29]

Therefore a plan of attack was evolved to counter the causes. The patients were to:

1. Take an adequate amount of vitamin B-complex by mouth in addition to liver extract by injection to improve the circulation. In addition to a normal and seemingly adequate diet, they received 20 mg. thiamin, 20 mg. riboflavin, 100 mg. nicotinic acid, 3 mg. pyridoxine, 6 mcg. B_{12}, 50 mg. pantothenic acid, small doses of liver factor and brewers yeast, 20 gr. and 8 gr. respectively. To help absorption they took 10 to 15 minims dilute hydrochloric acid,[30] Allison showing this to be necessary.

2. Use antibiotics and sulfonamides locally and systemically to eliminate infection.

3. Avoid coffee, hot beverages, condi-

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†Kutapressin is now supplied by the Kremers-Urban Co., Milwaukee, Wis., in the form of a sterile aqueous solution.

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ments, excessive intake of carbohydrates and proteins, and eat plenty of fruits and vegetables. A short trial with hydrochloric acid was stopped if discomfort arose.

4. Reduce nervous tension, shed as many responsibilities as possible, use sedatives occasionally.

A parallel series of cases as control was not possible. During the previous five years experience, local treatment, hydrochloric acid, diet and x-ray therapy had given indifferent results. Addition of vitamins and injections of S-factor, for relief of congestion, and antibiotics for pustules, gave marked improvement. One cc. of aqueous procaine penicillin combined with 2 cc. S-factor did not increase the pain of injection.

The use of liver for acne was first suggested by Sutton.[31] Marshall[32-37] discovered the S-factor in liver by boiling and fractionally distilling crude liver extract. He showed S-factor caused definite blanching of cutaneous capillaries, a specific vasoconstriction of the skin without systemic change or rise in blood pressure. Used in keloids, the improved circulation facilitated melting of these lesions. This showed promise of aiding the engorgement about the nose in rosacea. Many of his cases of acne vulgaris, and some of rosacea responded to it. Dilated veins showed improvement. Burks and Knox[29] had the impression S-factor was most effective in skins with marked erythema. They confirmed the cutaneous pressor effect. The injection did not have the painful characteristics of crude liver. No untoward reactions were seen. Erythema responded best with S-factor, seborrheic eczema best with crude liver. Hume[38] reported crude liver extract to be the most important of many systemic measures suggested for adjuvant therapy in rosacea. Walter[39] found crude liver extract heated and unheated beneficial in treatment of acne. Lichtenstein[40] reported good results with little pain from injections of boiled liver. Gathings[41] used hyaluronidase and S-factor in keloids with good results, suggesting its use in rhinophyma. Pensky[42] and Nierman[43] used S-factor in acne.

Vitamins of the B-group are essential to the oxidation-reduction mechanism of all living cells, serving as the chemically active group in the coenzyme system involved. They help the liver to detoxify. Generally all factors play a part. Specifically riboflavin lack causes oral changes such as perleche and smooth tongue, cutaneous lesions as crusty desquamation of the nasolabial folds, and ocular disturbances such as photophobia, burning, itching, visual fatigue. Pyridoxine lack causes dermatitis of exposed areas and dyssebacea, and in animals severe thick crusting of the ears and cheilosis. Joliffe[14] found it helpful in reducing oiliness of the skin. Nicotinic acid lack gives typical lesions of skin, dermatitis and pigmentation in areas normally exposed to sun,—on the hands, feet, neck and face. The relation of biotin to seborrheic dermatitis is possible.[7] Kline[44] found parenteral injections of B-complex very helpful in his acne regimen.

In our series 158 patients were treated. Seventy per cent were followed several weeks, 30 per cent for a 4 year period, and a few for 10 years. There were twice as many women as men. Most were 30 to 50 years of age. The majority had fair skin, light complexion, flushed easily and had a slightly oily skin. None had rhinophyma. Most were overweight. The skin was delicate and if soap irritated it, cleansing was done with bentonite powder. Half strength lotia alba was patted on at bedtime; if this was not well tolerated, zinc oxide ointment was prescribed. Where lesions were frankly pustular, local sulfonamides and antibiotics were used.

Seventeen per cent received only one injection of S-factor, 30 per cent received two, 12 per cent three, 7 per cent four, 8 per cent five, 9 per cent six, and the rest from 8 to 15 injections. If severe, they were given twice weekly, after 1 to 2 weeks only once weekly. Ninety per cent received 1 to 4 doses of x-ray, 70 r unfiltered. Ten per cent received only S-factor, 90 per cent received this combined with penicillin; 24 per cent received sulfadiazine by mouth, and 12 per cent received tetracylines in place of penicillin. Only two patients failed to have pustulation controlled; it cleared, but immediately relapsed when therapy was stopped. Almost half followed for 2 to 4 years had subsequent relapses, the tendency to rosacea being recurrent. The flare-ups were mild, responded quickly to 1 to 2 injections of S-factor and antibiotics, resumption of vitamins and local care. Half the cases having two or more injections were seen at subsequent dates of 1 to 5 years, and of these

40 per cent remained free, 20 per cent had minor difficulties necessitating self-treatment at home and 40 per cent had minor flare-ups responding to office treatment.

Summary

Pustules of rosacea were arrested with penicillin, sulfonamides, and tetracyclines. The congestion improved with S-factor and B-complex. Relapses were lessened by sensible living, diet, and release of tension and occasional resumption of vitamins.

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